

fruits of 5086 agree with those described from Surinam by Eyma (b).

*Cariniana domestica* (Mart.) Miers appears to be represented by Krukoff 5597, collected near mouth of Rio Macaahan (tributary of Rio Yaco), basin of Rio Purus, Territory of Acre. Our plant, in foliage and fruit, resembles the descriptions and plates. Mr. Krukoff notes it as a buttressed tree nearly 60 meters high.

*Cariniana micrantha* Ducke - Amazonas: near mouth of Rio Embira (tributary of Rio Tarauaca), basin of Rio Jurua, Krukoff 5095. A strongly buttressed tree nearly 60 meters high, equalled in the Jurua region only by a species of Swietenia. The wood of the two species is occasionally sold in mixture.

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(a) Meded. Bot. Mus. en Herb. Rijks Univ. Utrecht 4: 59. 1932.

(b) l. c. 57.

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#### STUDIES OF SOUTH AMERICAN PLANTS - IV

New Monimiaceae, Trigoniaceae, and Vacciniaceae

A. C. Smith

In the accompanying paper specimens from several herbaria are cited. These institutions are indicated by the following abbreviations: Arnold Arboretum (A); British Museum (BM); Gray Herbarium (G); Royal Botanic Gardens, Kew (K); Jardin Botánico, Madrid (M); U. S. National Museum (N); New York Botanical Garden (Y).

#### MONIMIAOEAE

SIPARUNA HEMISPHERICA A. C. Smith, sp. nov. Frutex dioecus (vel arbor parva?); ramulis elongatis subteretibus fuscis glabris; petiolis oppositis vel suboppositis semi-teretibus rugosis nigrescentibus glabris 7-20 mm. longis; laminis fuscescentibus oblongis, 13-19 cm. longis, 4-5.5 cm. latis, basi acutis, apice subacuminatis, margine subintegris et anguste revolutis, utrinque glabris, pinnatinerviis, costa supra plana subtus prominente, nervis lateralibus 8-11 in quoque latere arcuato-ascendentibus prope margines anastomosantibus, utrinque leviter elevatis, venulis reticulatis leviter elevatis; inflorescentiis ♂ axillaribus plerumque

binis 2-3.5 cm. longis 6-12-floris; pedunculo 1.5-2.5 cm. longo gracillimo nigrescente glabro (vel minute puberulo); floribus nigrescentibus ubique glabris (juventute parce puberulis); pedicellis 2-5 mm. longis; receptaculo cupuliformi sub anthesi 2 mm. diametro; tepalis 5 patulis carnosis oblongis rotundatis circiter 1 mm. longis et latis; velo carnosio plano circiter 0.7 mm. lato, ore minuto; staminibus 4 vel 5 carnosis oblongis subacutis, 1-1.2 mm. longis, 0.7-1 mm. latis, dorsaliter minute luteo-glandulosis, antheris filamenta subaequantibus, per poros ovales contiguos 0.3 mm. longos dehiscentibus; inflorescentiis ♀ desideratis.

Type, Mutis 1843, collected in Colombia and deposited in the herbarium of the Jardin Botánico, Madrid. It is a species very similar in general appearance to S. Archeri A. C. Smith, from which it differs by its totally glabrous habit, its longer ♂ inflorescence, its slightly larger flowers with spreading tepals, and its reduced number of stamens. The relationship of the new species to S. nicaraguensis Hemsl. should also be noted, but the Central American plant has a slightly puberulous habit, shorter inflorescences, and differently shaped leaves than S. hemisphaerica. The specific name refers to the shape of the receptacle.

**SIPARUNA EPISCIAEFOLIA** A. C. Smith, sp. nov. Frutex dioecus; ramulis subteretibus fuscis parce pilosis (pilis hispidis plerumque simplicibus); foliis alternis, petiolis subteretibus rugosis fuscis parce hispidis 7-17 mm. longis, laminis fuscis papyraceis oblongis, 10-12 cm. longis, 3-3.5 cm. latis, basi acutis vel anguste obtusis, apice acutis, margine crassis et crenatis vel callosio-denticulatis, utrinque praecipue ad nervos pilos plerumque simplices 0.4-0.6 mm. longos gerentibus, pinnatinerviis, nervis secundariis utroque 11-14 arcuato-ascendentibus prope margines anastomosantibus, cum costa supra subplanis subtus leviter elevatis, venulis subtus prominulis; inflorescentiis ♂ axillaribus saepe binis 1-2 cm. longis; pedunculo subglabro flexuoso ad 1.5 cm. longo; floribus nigrescentibus extra parce fuscohispidulis (pilis ad 0.3 mm. longis), 2-3 mm. diametro; pedicellis 1-3 mm. longis; receptaculo obconico sub anthesi 1.5 mm. diametro; tepalis 5 (vel 4) carnosis patulis saepe recurvatis oblongis obtusis maturitate 0.7-1 mm. longis et latis; velo tenuiter carnosio vel submembranaceo conico-elevato circiter 0.5 mm. lato, extra saepe luteo-glanduloso, ore 1 mm. diametro; staminibus plerumque 3 carnosis oblongis obtusis, 1.3-1.7 mm. longis, 0.7 mm. latis, dorsaliter parce luteo-glandulosis, antheris quam filamentis paullo brevioribus, per poros ovales contiguos 0.4 mm. longos dehiscentibus; inflorescentiis ♀ desideratis.

Type, Mutis 1901, collected in Colombia and deposited in

the U. S. National Herbarium (no. 1,560,008). Duplicate at M. It is a species related to the Peruvian S. hispida A. DC., from which it differs by the less dense and less hispid pubescence and the narrower leaves. Flowers of the new species consistently have 3 stamens, a number which is conspicuously low for the genus. As ♂ flowers of S. hispida are not known, the plants cannot be compared in regard to staminal characters.

SIPARUNA METENSIS A. C. Smith, sp. nov. Frutex dioecus; ramulis teretibus hispido-pilosis (pilis simplicibus vel e basi 2-3-fidis 0.5-1 mm. longis); petiolis suboppositis teretibus 5-8 mm. longis velut ramulis pilosis; laminis papyraceis obovato-oblongis, 12-17 cm. longis, 5-7 cm. latis, basi obtusis, apice subito acuminatis, margine crenatis vel apiculato-dentatis (dentibus plus minusve callosis 3-5 per centimetrum), utrinque pilis 1-3-fidis pilosis, pilis secus nervos principales densioribus, nervis secundariis utroque 9-12 arcuato-ascendentibus, cum costa supra prominulis subtus elevatis, venulis utrinque planis vel prominulis; inflorescentiis ♂ et ♀ cymosis, cymis in foliorum axillis 2-4 paucifloris 12-30 mm. longis, cum floribus parce hispidis (pilis e basi 1-3-fidis 0.3 mm. longis); pedicellis circiter 3 mm. longis; floribus ♂ maturitate 3 mm. diametro; receptaculis subglobosis limbo angusto obtuse 5-gono (e tepalis connatis constante) circumdatis; velo leviter elevato, ore minuto; staminibus 4, antheris minutis, filamentis dilatatis minute luteo-glandulosis 1.5 mm. longis et latis apice contractis; floribus ♀ velut ♂, stylis circiter 15 leviter exsertis leviter cohaerentibus sed non connatis; drupis juvenilibus obconicis pilosis 6 mm. diametro.

Type, Brother Apollinaire, collected in Dec., 1929, at Villavicencio, Intendencia Meta, Colombia, and deposited in the herbarium of the New York Botanical Garden. Duplicate at N. The type collection bears ♂ flowers. Another collection from the same locality, bearing ♀ flowers, is Brother Nicéforo Maria (Jan., 1927)(N, Y). It is a species related to the preceding, from which it differs by its shorter petioles, larger leaves, and its minute tepals and anthers.

#### TRIGONIAEAE

TRIGONIA MEMBRANACEA A. C. Smith, sp. nov. Arbor parva; ramis violaceis teretibus glabris lenticellatis; ramulis fuscis striatis cinereo-puberulis mox glabrescentibus; petiolis gracilibus 3-4 mm. longis decidue puberulis; laminis membranaceis viridibus glabris (subtus costa et axillis nervorum interdum puberulis) ovato-oblongis, 5-7 cm. longis, 2-2.5 cm. latis, basi obtusis vel rotundatis, apice cuspidatis saepe calloso-mucronatis, margine integris, nervis secund-

ariis plerumque 4 utroque arcuato-adscedentibus anastomosantibus, cum costa utrinque leviter elevatis subtus pallidis; inflorescentiis ut videtur terminalibus 4-6 cm. longis, rhachidibus puberulis; capsulis breviter pedicellatis fuscis glabris subrugosis ovoideo-trilobatis, 18-20 mm. longis, circiter 10 mm. latis, valvis concavis intus flavescens apice bifidis, marginibus introflexis; seminibus 1.5 mm. longis, lana lutescente 10 mm. longa circumvestitis.

Type, Killip & Smith 14396, collected Nov. 11, 1926, in woods at Torrecilla, near Turbaco, Department of Bolivar, Colombia, alt. 150-300 m., and deposited in the herbarium of the New York Botanical Garden. Duplicates at A, G, N. It is distinguishable from other species of the genus by the size, shape, texture, and venation of its leaves. Its relationship is probably with the Guiana species *T. microcarpa* Sagot and *T. laevis* Aubl., than both of which its leaves are more delicate in texture and with fewer lateral veins, and its inflorescences probably shorter.

TRIGONIA CRASSIFLORA A. C. Smith, sp. nov. Arbor parva; ramulis subteretibus striatis fuscis, pilis ferrugineis circiter 0.5 mm. longis obiectis, demum glabrescentibus et lenticellatis; stipulis interpetiolaribus (mox deciduis) subcoriaceis puberulis oblongo-lanceolatis, circiter 10 mm. longis et 3 mm. latis, apice obtusis; petiolis leviter canaliculatis basi incrassatis, 3-4 mm. longis, decidue strigosis; laminis papyraceis concoloribus oblongis, 12-17 cm. longis, 5-9 cm. latis, basi subcordatis, apice breviter acuminatis, margine integris et leviter undulatis, supra parce papillosis et scabridulis, utrinque glabris (subtus nervis principalibus interdum strigosis), costa subtus prominente fusca, nervis secundariis utroque 7 vel 8 arcuato-adscedentibus superne anastomosantibus utrinque elevatis, venulis copiose reticulatis utrinque prominulis; inflorescentiis terminalibus anguste paniculatis densifloris, ad 12 cm. longis et 3 cm. latis, rhachidibus ramisque crassis densissime ferrugineo-tomentosis (pilis ad 0.8 mm. longis); floribus in ramis secundariis brevibus subsessilibus, bracteis ovatis subtentis (bracteis acutis, ad 6 mm. longis et 4 mm. latis, extra ferrugineo-sericeis intus pallido-puberulis); calycis lobis oblongo-ovatis 6-7 mm. longis, extra ferrugineo-vel cano-tomentulosus intus glabris; petalis membranaceis glabris inaequalibus; petalo postico 7 mm. longo, inferne in gibberem 4 mm. longum excavato, ad faucem sacculi breviter ferrugineo-piloso, superne plano rotundato, margine undulato; petalis lateralibus obovato-spathulatis planis, 7 mm. longis, 4 mm. latis, apice rotundatis; petalis anticis obovatis, circiter 5 mm. longis et 3 mm. latis, medio intus carinatis; staminibus fertilibus 8 glabris, 3-4



mm. longis, filamentis prope ad apices connatis, antheris ovoideis 1 mm. longis; glandulis 2 castaneis ad 2 mm. longis; ovario ovoideo, pilis stramineis ad 1 mm. longis dense hispido; stylo 3 mm. longo superne incrassato; stigmatibus albis discoideo 1 mm. diametro, medio depresso.

Type, R. A. Toro 1115, collected June 20, 1928, at Puerto Berrio, Department of Antioquia, Colombia, and deposited in the herbarium of the New York Botanical Garden. It is a very distinct species on the basis of its large flowers and bracts, its robust inflorescence, and its concolored glabrous subcordate-based leaves. The Peruvian T. virens Macbr. seems to be its closest ally, but has pedicellate flowers and a different type of inflorescence pubescence, as well as being less robust throughout.

#### VACCINIACEAE

CERATOSTEMA RIMBACHII A. C. Smith, sp. nov. Frutex parvus; ramulis cinereis subteretibus glabris, petiolorum basi-incrassatis; stipulis minutis (1 mm. longis) mox deciduis; petiolis subnullis (ad 1 mm. longis); laminis coriaceis glabris oblongis vel obovato-oblongis, 12-18 mm. longis, 5-8 mm. latis, basi rotundatis vel late cuneatis, apice obtusis, margine integris incrassatis, costa utrinque prominula, nervis secundariis 2 vel 4 e costa prope basin orientibus sed obscuris; floribus axillaribus solitariis glabris, bracteis minutis 1 vel 2 subtentis; pedicello rugoso 1 mm. longo decidue minute glanduloso-piloso, cum calyce articulado; calycis tubo obconico sub anthesi 1.5-2 mm. longo, limbo subrecto papyraceo lobis inclusis 2 mm. longo, lobis deltoideis, 1.5 mm. longis; corolla subcarnosa subcylindrica 10-12 mm. longa, 3 mm. diametro, lobis oblongis obtusis 1-2 mm. longis; staminibus 7-10 quam corolla paullo brevioribus; filamentis nigrescentibus glabris 1-2 mm. longis; antheris 7-8 mm. longis, tubulis flexilibus quam loculis 2-3-plo longioribus; stylo corollam aequante, stigmatibus subcapitato.

Type, Rimbach 188, collected in February, 1934, on the eastern slope of Mt. Tunguragua, Province of Tunguragua, Ecuador, and deposited in the herbarium of the Field Museum (no. 740,295). Duplicate at Y. It is a species allied to C. coronarium Linden, from which it differs by its subsessile flowers, differently shaped leaves, and its glabrous and less compact habit. The reduced number of stamens is unusual in the genus. C. Rimbachii bears a resemblance to certain species of Disterigma, but the lack of large pedicellary bracts, the presence of intrapetiolar stipules, and the branchlets, which are swollen at the base of each petiole, indicate the place of the new species in Ceratostema.

CERATOSTEMA COLOMBIANUM A. C. Smith, sp. nov. Frutex;

petiolis rugosis 2 mm. longis juventute puberulis; laminis oblongis vel ovato-oblongis, 20-35 mm. longis, 9-15 mm. latis, basi cordatis, apice rotundatis vel obtusis, subtus pilosis glabrescentibus, obscure 5-nerviis; inflorescentiis 2-5-floris; pedicellis 5-8 mm. longis pilosis, cum calyce articulatis; calycis tubo 3-4 mm. longo, limbo 3 mm. longo, lobis deltoideis 2 mm. longis; corolla circiter 15 mm. longa et 6 mm. diametro pilosa; staminibus alternatim leviter inaequalibus, filamentis basi subconnatis, antheris 9.5-10 mm. longis, tubulis quam loculis 2-3-plo longioribus rimis dehiscentibus.

Type, Ariste Joseph B.112, collected on the eastern páramos of Guasca, towards Gacheta, Department of Cundinamarca, Colombia, and deposited in the U. S. National Herbarium. The following specimens from Cundinamarca also represent the species: near Bogotá, Triana 2688 (BM); Guasca, E. Perez Arbolaez 1178 (K, N). In my recent monograph (a) the Ariste Joseph specimen was erroneously referred to Ceratostema parvifolium Benth., which name was properly referred, elsewhere in the same paper, to Thibaudia parvifolia (Benth.) Hoer. My description of C. parvifolium (a) was based entirely upon Ariste Joseph's specimen; therefore that complete description may be taken to augment the above.

CAVENDISHIA NITIDA (HBK.) A. C. Smith, comb. nov. Thibaudia nitida HBK. Nov. Gen. & Sp. 3: 271. 1818. Psammisia nitida Kl. Linnaea 24: 45. 1851. Macleania nitida Hoer. Bot. Jahrb. Engl. 42: 269. 1909. Cavendishia obtusa A. C. Smith, Contr. U. S. Nat. Herb. 28: 498, pl. 16. 1932. A specimen collected in Tolima by Humboldt and Bonpland, deposited in the Botanisches Museum at Berlin, is erroneously indicated as the type of Thibaudia nitida, and was accepted as that species both by Hoerold and the present writer. However, the actual type of Thibaudia nitida, to which the description more accurately applies, is deposited in the herbarium of the Jardin des Plantes, Paris. Consequently the above new combination is necessary. The specimens cited in my recent monograph as Cavendishia obtusa should be referred to C. nitida.

MACLEANIA RUPESTRIS (HBK.) A. C. Smith, comb. nov. Thibaudia rupestris HBK. Nov. Gen. & Sp. 3: 270. 1818. Psammisia rupestris Kl. Linnaea 24: 45. 1851. Other synonyms cited in my recent monograph (b). The use of the name Thibaudia nitida for a species of Cavendishia, as already noted, makes necessary the above new combination for the common Andean species of Macleania, although I regret the necessity of discarding Hoerold's name M. nitida for this well-known species. The specimens cited by me as M. nitida should be

referred to M. rupestris. The type collection may be seen at both Paris and Berlin.

MACLEANIA MOLLIS A. C. Smith, sp. nov. Frutex; ramulis angulatis pilis pallidis ad 1 mm. longis dense vestitis; petiolis rugosis pilosis 2-3 mm. longis; laminis coriaceis late ovatis, 4-5 cm. longis, 2.5-3.3 cm. latis, basi cordatis, apice obtusis, margine integris et leviter revolutis, supra juventute pilosis mox glabris, subtus praecipue ad nervos molliter albo-pilosis, 5- vel 7-pli-nerviis, nervis supra impressis subtus prominentibus, venulis reticulatis; inflorescentiis axillaribus fasciculatis 1-3-floris bracteis minutis subtentis; floribus ubique pilos albos circiter 0.4 mm. longos gerentibus; pedicellis 1-3 mm. longis; calycis tubo obconico vel obscure 5-angulato, circiter 3 mm. longo et diametro, limbo erecto-patente lobis inclusis 3 mm. longo, lobis 5 deltoideis apiculatis, 1.5 mm. longis, 3 mm. latis; corolla urceolata, 18 mm. longa, prope basin 5 mm. diametro, lobis parvis; staminibus 10 aequalibus, 11 mm. longis; filamentis glabris nigrescentibus 3 mm. longis; antheris circiter 9 mm. longis, tubulis 2 angustis basi lateraliter connatis loculos aequantibus, rimis longis dehiscentibus; stylo corollam aequante.

Type, Rimbach 119, collected in 1932 near Riobamba, Province of Chimborazo, Ecuador, and deposited in the herbarium of the New York Botanical Garden. It is related to M. hirtiflora (Benth.) A. C. Smith, from which it differs by its pli-nerved rather than pinnate venation, the more pronounced pubescence of all its parts, its fasciculate inflorescence, and its short pedicels.

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(a) Contr. U. S. Nat. Herb. 28: 346. 1932.

(b) l. c. 376.